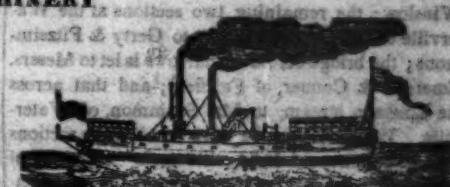


AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY.



AND MINES.

ESTABLISHED 1831.

PUBLISHED WEEKLY, AT NO. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, NO. 44.]

SATURDAY, OCTOBER 30, 1847.

[WHOLE NO. 593, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

PRINCIPAL CONTENTS.

Androscoggin and Kennebec Railroad	630
Pennsylvania Public Works	630
Railway Car Builders	630
Baltimore and Ohio Railroad Report	630
Railway Accidents in Great Britain	630
Speed and Power of Locomotives on the Narrow Gauge	634
Atmospherical Railway on a New Plan	635
Cradock's Improved Locomotives, etc.	636
A New Rotary Steam Engine	637

AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA

EDITION. Saturday, October 30, 1847.

To Contractors—Pennsylvania Railroad. The following notice from the Pennsylvania railroad company, will be received by the community as another evidence of the determination of those who have the direction and management, to press on the work in the most efficient manner. Thirty miles were put under contract in July, and the work has been going on in an efficient manner upon the sections then let, fifteen miles westward from Harrisburg and sixteen miles eastward from Pittsburgh. Now the letting is to be thirty-six miles westward from Section 20—or from the termination of that let in July last, west from Harrisburg—to near Lewistown Dam, making forty-six miles continuous from Harrisburg.

We understand that it is the determination of the directors of this company to accomplish the work entrusted to their charge in the shortest possible period, and we hesitate not to say, that, when completed, the people of Philadelphia will owe more of their prosperity to it, than to all their other public works combined.

PENNSYLVANIA RAILROAD COMPANY. Notice to Contractors.—Proposals will be received until THURSDAY, the 25th day of November, at 10 o'clock A. M., at the Town Hall, in the Borough of Lewistown, for the grading and masonry upon about 36 miles of the Pennsylvania Railroad, extending west from section 20 to near Lewistown Dam.

Plans and specifications of the work can be seen at the above named place for five days previous to the time appointed for receiving bids.

Any further information can be had upon application to WM. B. FOSTER, Jr., Esq., Associate Engineer at Harrisburg; S. V. MERRICK, President,

Schuylkill Coal Trade.

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, October 21, 1847.

From Port Carbon	Tons. cwt.
" Pottsville	9,063 16
" Schuylkill Haven	4,563 01
" Port Clinton	12,016 31
Total for week	4,106 04
Previously this year	29,749 14
Total	1,080,134 02

HENRY M. WALTER,
Supl. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending October 21, 1847.

Tons. cwt.
Port Carbon
Pottsville
Schuylkill Haven
Port Clinton
This week
Previously
Total

HENRY M. WALTER,
Supl. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending October 21, 1847.

Tons. cwt.

Port Carbon

Pottsville

Schuylkill Haven

Port Clinton

This week

Previously

Total

6,906 02

2,186 17

00 00

9,092 19

175,590 00

184,682 19

HENRY M. WALTER,
Supl. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending October 21, 1847.

Tons. cwt.

Port Carbon

Pottsville

Schuylkill Haven

Port Clinton

This week

Previously

Total

engine house of great capacity, and machine shop adjoining at Boston, with car shops at Andover.—The management of the road appears to be equal to any of the New England roads; the business and income has increased immensely the current year, over any preceding year, and we are fully of the opinion that they will be obliged soon to lay a double track from Boston to the new city of Lawrence, and also for several miles at the half way, or meeting point, to avoid detentions of the trains.

Winter Freight for Railroads.

The pork packers at the west are generally prepared for the operations of the season, and at Cincinnati, on the 13th inst., says a Pittsburg paper, the prospect was favorable for an early commencement. At St. Louis, it was calculated the market would open at about \$3 and \$3 50 per 100 pounds, with a fair supply of good hogs upon the market."

"The pork packers of the west" will find a new era open upon them when there is a continuous railroad from them to a market. Then the hogs will be carried in carcass to the salt and the barrels—and thus save a considerable expense to the consumer—then we shall see the fat porkers of the west coming to us by thousands as large as life.

Increase of Receipts on Railroads.

We are pleased to learn that the increase of business on railroads has not been confined to any one section of the Union, but that it is universal. We are informed that the receipts during the past ten months, upon the Central, Georgia, road has been about \$100,000 greater than for same period last year—and for the year it will probably amount to \$120,000.

Railway Brakes.

We frequently hear of serious accidents to railway trains for want of brakes of sufficient power to arrest its progress. We have often called attention to this subject, and urged it upon ingenious men to devise a brake which might be applied to every wheel in the train at the same time by a single motion, or power; and we have reason to believe that other, and abler minds, have deemed it of sufficient importance to devote their attention to it, from which we anticipate much benefit.

We some time since copied from the London Mining Journal, of August 14th, an article on the subject, and we are now informed that a gentleman of this city is also perfecting a model, for the same purpose.

See September 25th.

pose, which we are told will fully accomplish the object; and we hope soon to be allowed to give a description of it.

Androscoggin and Kennebec Railroad.

We learn from the Waterville Mail, that this whole road, including the bridge, is now under contract. The three sections from Winthrop village north, were let to Mr. Warren, of Pownal; the next five sections to Wm. Phelan, of Salem; the next to Mowers, Wall, Sanders & Co., of Waterville and Winslow; the remaining two sections at the Waterville end of the road, are let to Gerty & Fitzsimmons; the bridge across the narrows is let to Messrs. Emerson & Conner, of Fairfield; and that across the Emerson stream, to Mr. Scammon, of Waterville. We learn that the work on all these sections is to be commenced during this week. A portion of the pay for grading, in all instances in the above lettings, is to be taken in stock. A gentleman who has just returned from Lewiston, and who has been over the entire line between the junction and Winthrop, says, that on every section heretofore let, up to Winthrop village, there are several companies of men at work. The grading is pressed with all possible speed, and on several sections a large portion of the work is done. The stone for the masonry of the Great and Little Androscoggin bridges, has all been split out and is ready to be laid. We are gratified to hear of these operations and also of the progress made on those sections heretofore put under contract.

Pennsylvania Public Works.

Comparative Income of 1846 and 1847.

The following statement, from the Harrisburg Union, shows the amount of tolls received on the canals and railroads of this State, during the month of August, and the total receipts from 30th November, 1846, to 1st September, 1847.

Offices.	Total since 30th Nov. For August.
Easton	\$17,942 52
New Hope	1,091 91
Bristol	9,629 99
Philadelphia	42,549 18
Paoli	3,378 52
Parkersburg	1,434 73
Lancaster	1,939 92
Columbia	31,726 21
Portsmouth	1,420 44
Harrisburg	1,885 35
Newport	362 84
Lewistown	811 77
Huntington	535 26
Hollidaysburg	20,842 40
Johnstown	19,616 03
Blairsville	1,609 88
Freeport	390 36
Pittsburg	14,972 38
Dunnsburg	1,808 64
Williamsport	895 67
Northumberland	4,742 23
Berwick	30,950 50
Liverpool	232 21
Schuylkill viaduct	37 05
Portsmouth Outlet Lock	16 00
Swatara Aqueduct Bridge	91 41
Duncan's Island Bridge	105 63
Total	191,739 11
Same period, 1846	136,324 90
Increase in 1847	55,425 91

This amount is derived from the—

Main line to Pittsburg	\$358,565 86
Delaware Division	113,232 37
Other works	139,574 86

But for the unfortunate interruption of navigation by the late storm, the receipts for the whole year would probably have reached \$1,600,000—as it is,

there is reason to fear that it will not exceed a million and a half; yet with only that amount of gross receipts, it will exceed those of last year by nearly, or quite, \$300,000, which is encouraging to the people of Pennsylvania to meet the interest upon their debt promptly, as a similar increase for a few years more will relieve them from taxation to pay interest.

Railway Car Builders.

The question has been often asked us "Why is it that we have no establishment in Philadelphia, or its vicinity, for building railway cars?" No place in the Union has built as many locomotive engines as Philadelphia. Scarcely a road in the Union but has been indebted to our shops for locomotives, yet no cars bear the mark of "Philadelphia"—and why not? It seems to us that there is no point in the Union which offers greater inducements for a first-rate establishment in this line than Philadelphia; and we therefore suggest it to the enterprising young men in the line to look to it. It is a field worth cultivating, and it will not long remain unoccupied.

Notwithstanding the extensive establishment of Davenport & Bridges, at Cambridgeport, Gilbert & Eaton, of Troy, and another at Worcester, Massachusetts—there is to be another, as we learn from the Norwich Courier, at Norwich, Connecticut, on a large scale, thus showing that the business is considered by the shrewd men of that region not yet overdone.

The following description is taken from the Norwich Courier, of 16th inst., and the establishment is, we understand, to be under the direction, in whole, or in part, of Mr. James D. Mowry.

Norwich Car Manufactory.—We always hail with much satisfaction the establishment in our city and town of any new branch of manufacturing or mechanical business, since to these sources it is we must mainly look for that productive labor which adds to the real substantial wealth of the community. We dare say a large portion of our citizens are quite ignorant of the fact, that an establishment for the manufacture of railroad cars of all descriptions, and of locomotive engines, is in progress of rapid completion in this city. Many of our readers no doubt have noticed two long brick buildings which have been, for some time past, going upon the south side of the road leading to Greenville. These are the buildings of the "Norwich Car Manufactory."—One of these is to contain the workshops, as they are called; the others for upholstering and setting up the cars. The former is about 200 feet long, and some 50 in width—the second 150 in length, 50 in width, and three stories high. Quite a number of brick tenements, also, for the accommodation of workmen connected with the establishment, are going up simultaneously with the other buildings.

"The number of hands to be employed in the car building department is about 300, and the company hope to be ready for action in the course of four or five weeks from the present time."

"The department for building locomotive engines is not to go into operation until the other branch of business is well under way. It is to follow in due time in regular order, however. And when the whole concern is got in motion, what with planes, saws, chisels, mallets,

"The clink of hammers closing rivets up, and all the other machinery in full blast, we incline to think such another babel will be hard to find where in Norwich. Success to the enterprise, say we! No more eligible spot could be found in all New England for an extensive establishment of the sort. Every possible facility for sending their cars and locomotives in any and all directions, will be

enjoyed by the company. Look for instance at the vast net work of railroads in Massachusetts, New Hampshire and Vermont, which furnish at once the means of transportation, and create a demand for the products of these workshops. As an illustration of the amount of business which the Norwich car manufactory may reasonably anticipate, we may state that we are informed by one of the company, that already since the formation of the company, contracts to the amount of not less than *two hundred thousand dollars*, for railroad cars, have been offered them."

There is also a new car manufactory recently established at Springfield, Massachusetts, by Messrs. T. & C. Watson, of which we have recently heard, and expect to hear more soon.

Baltimore and Ohio Railroad.

Twenty-first Annual Report.

We find, in the Baltimore American, the 21st annual report of this company. It is given in the full and lucid manner of the able president of the company, and will be read with deep interest by all who are in any way interested in the success of the noble work, or are familiar with the difficulties which it has had to encounter, and which it is sure to overcome; and therefore we give it a place in the Journal without delay—and refer our readers to it for the interesting facts it puts forth, rather than to any remarks of our own.

We cannot omit, however, to refer to the statement of the falling off in the revenue of the Washington Branch, since the last reduction of rates.—We hoped for a different result, though we freely admit that there are many other lines in this country where a reduction of fare would be more likely to increase receipts than on the line between Baltimore and Washington.

At a meeting of the stockholders, held pursuant to the charter, on the second Monday of October, 1847, in the city of Baltimore, the President and Directors of the Baltimore and Ohio Railroad Company submitted the following report and statement of the affairs of the company:

FIRST, OF THE MAIN STEM.

The statement of A shows the state of the company affairs on the 30th ult., and the revenue and expenses of the main stem for the year ending on the same day are shown by the statement B.

These statements exhibit a considerable increase both in the trade and travel; and it will appear from an examination of the various items of which they are composed, and from the elaborate report of the Chief Engineer, acting as General Superintendent, here-to appended, that in proportion to the amount of business, there has been a very favorable diminution in the cost of transportation and expenses of working. The general economy in the management of the road, either in regard to its particular condition, or as compared with other roads in the United States, or elsewhere, though more favorably situated, is also worthy of particular notice, and ought not to escape the attention of the stockholders.

The gross receipts from the business of the main stem, independent of its connection with the Washington road, amount to the sum of \$1,101,936 58, and the expenses of working and management, of all kinds, to the sum of \$590,828 96, little more than 50 per cent. of the gross receipts, and leaving a balance of

net earnings, over all expenses of working, of \$511,107 00, being more than 7½ per cent. upon the capital. Without reference to the detailed statements and observations in the report of the chief engineer, and to the subsequent remarks in this report, or to the working of other similar roads, this result would establish the general economy in the administration of this work, and show that the cost and expense of transportation bear a reasonable and economical proportion to the State receipts from trade and travel. If, therefore, there were no other objects to which the board were under an obligation to apply the above-stated net receipts, the dividend for the past year, under the present system of management, might not have been less than seven per cent., and the necessity of applying them to other objects, however it might be regretted, has been altogether unavoidable.

The stockholders were informed in the last annual report that engagements, made prior to the month of September, 1846, for reconstruction of 30 miles of the old track, for new locomotive engines, for new burthen cars, and for improvements at the several depots, stated in that report at \$325,000, would be chargeable upon the receipts of the year just closed—and that by the interest upon the bonds then authorized to be issued, and the installment payable during the year to Messrs. Baring, Brothers & Co., the amount so chargeable would be swelled to an aggregate of not less than \$418,000.

It is now to be observed that the payments during the year on account of all the foregoing items have actually amounted to the sum of \$403,662 63, and that from the receipts of the year there has also been paid, on account of surveys west of Harper's Ferry, for interest on temporary loans, rendered necessary to meet the engagements of the previous year in anticipation of the accruing revenue, and for additional burthen cars, indispensable to comply with the more pressing demands of the increasing trade, the further sum of \$37,534 10.

Of the net earnings, as shown above, no expended on account of capital, and which is in the power of the board to replace by the sale of their six per cent. bonds, the board have declared a dividend of three dollars upon each share, and applied the further sum of \$20,000 to the sinking fund provided, as stated in former reports for the reimbursement of the loan of \$1,000,000—on account of the Washington road, leaving a surplus to be reimbursed from the cost of reconstruction by the sale of bonds of \$23,918 00.

It ought also to be observed that while, from the causes already explained, the dividend of the city and individual stockholders does not exceed three dollars per share, the State of Maryland has derived much greater advantages from her connection with this enterprise. The subscription of \$3,000,000 made by the State in 1838, with a distinct understanding that both the city and state should at the time contribute an equal sum, was paid in five per cent. sterling bonds; and that, although the subscription by the city has been fully realized and applied to the construction

of the road to Cumberland, yet, that in consequence of the depreciated credit of the State, the sterling bonds received from the treasurer have remained for the most part unavailable. Of the entire sum of the \$3,000,000, an amount not exceeding five thousand pounds sterling have been disposed of and while the company has continued regularly to pay the interest upon that amount to the bondholder, the State, during the whole period, has annually received larger sums from the company than any other stockholder.

During the past year, including the bonus, the State has received, from the earnings of the Washington road, an amount equal to 10 per cent. upon her subscription to that road—and with the dividend from the earnings of the main stem, the State has actually received a sum equal to seven per cent. upon her investment in both roads.

If the revenue heretofore applied to reconstruction, the board have replaced during the year the sum of \$49,105 12 by the sale of their six per cent. bonds, at prices averaging about their par value; and it may be added, that by the consent of the city authorities to receive the present dividend, payable to the city, in the same securities, the board will be enabled to make a further sale of the same description of bonds to the amount of \$105,000, at their par value.

It is proper also to state, that during the past year the board have entered into contracts, within the estimates of the engineer, for the further reconstruction of 31 miles of the old track, payable partly in the company's notes at long credits, and partly in the six per cent. bonds alluded to in the last annual report, at par; and that they have also entered into contracts in the further amount of \$152,572, being \$46,000 less than the cost estimated by the chief engineer, for indispensable alterations in certain parts of the old track, payable altogether in similar six per cent. bonds of the company at their par value.—For so much of the foregoing engagements as are payable in the notes of the company, the board must rely ultimately upon the sale of an additional amount of six per cent. bonds, or upon loans in some other form, and until one of these can be effected upon favorable terms, upon the current receipts of the business of the road. The effect, therefore, upon the dividend of the current year must depend upon the success of one of the first resources.

A proper regard to the increased trade and travel upon the road, and to its economical working, and, what is even of greater importance, to the safety of the public, would not permit a thorough reconstruction of the old and imperfect track to be longer delayed.—By some, or all of the resources at the command of the board, these objects must be accomplished with the utmost possible despatch—and the duty of the board will only be discharged by accomplishing them according to their best judgment, with all the means at their command, and in a manner the least onerous to the stockholders.

Up to this time, it is not doubted that an impartial examination of the subject will satisfy the stockholders, that in the discharge of

the arduous and multifarious duties devolved upon the directors the board have practised a due economy and carefully guarded the interests entrusted to them.

The exhibition they are now enabled to make of a net earning of more than seven and one-quarter per cent. upon the capital, over and above all the current expenses of working and management, including extraordinary repairs of the roadway, bridges and machinery of all kinds, is not only a conclusive evidence of the economy with which their duty has been performed, but ought to afford substantial evidence of the future profits of the work, and of the stability of the company's credit.

This part of the subject, however, cannot be properly understood or appreciated, nor will the stockholders be able to do justice to the present condition or future prospects of their own enterprise, nor properly sustain its credit, without bearing in mind that their work is, and for some time must remain in an unfinished state—unfinished, not so much in regard to the termination to which it is designed ultimately to extend it, but, what is equally important, and to the present occasion more pertinent, unfinished in regard to its capacity and power of operation throughout the present line.

It would be a grave error, leading to serious and perpetual misapprehension to conclude that a railroad actually constructed between two given termini, was thereby finished and requiring no farther expenditure from the application of its resources to the purposes of capital. A railroad can be said, in no sense, to be finished until it is not only constructed and open for trade between two given points; the road must be considered as unfinished until it can be supplied with all the power and machinery of every description necessary to accommodate the public, and effectively and economically to conduct its daily operations. In all railroad companies in all countries this obvious view of the subject is universally conceded and acted upon, and everywhere the cost of a road and of all other objects comprehending its capital, is understood to include, not only the actual construction of the roadway, but the supply of all the stations, depot buildings, engines, cars and machinery of all kinds necessary to its effective operation.

Until, therefore, a railroad is not only actually constructed, but provided with all that is necessary for its effective working, it must remain unfinished, and while it is the duty of the company to proceed to finish the work in their charge with all proper energy, the only means by which it can attain that object is an increase of its capital by new subscriptions, or by some form of loan for the reimbursement of which both principal and interest, the annual receipts are the only resource. The stockholders will surely be informed, therefore, that not only the present road from Baltimore to Harper's Ferry, in consequence of the radical imperfection and defectiveness of the original construction, is yet unfinished, requiring a large annual expenditure to complete it, but that in regard to the necessary stations, depot buildings, and cars and machinery of every de-

cription, the whole work is yet unfinished, and on this account annually absorbing a considerable portion of the receipts to supply the defects. It must, then, be apparent that any unfavorable disproportion between the rate of the dividends and the amount of the net earnings can in no degree be attributed to improper expenditure in the working, but arises wholly from an unavoidable necessity of applying so large a proportion of the receipts to put the road in a finished state, to adapt it to the just demands of the trade, and to render it ultimately profitable to the stockholders. It is seen that during the past year under the present economy, if the defective-ness of the road and inadequacy of the machinery had not required such a heavy ex-penditure, the net earnings of the year would have justified a dividend to the stockholders of seven and a quarter per cent., and yet, in consequence of the necessity of such an ex-penditure, the board have been compelled to confine the dividend to three per cent., and temporarily to apply at least four per cent. of the net earnings towards completing the work.

It may not be out of place in this connection, and for better illustration of this part of the subject, to state that from the opening of the road to the year 1837, inclusive, (a period of 8 years) the gross receipts amounted to \$1,439,151, the expenses to \$1,038,818, the dividends to \$144,138, and the expenditure on account of capital only to \$247,195.—From the close of the year 1837 to the end of 1847, the gross receipts have been \$5,979,097, the expenses \$3,332,783, the dividends \$735,000, and the expenditure on account of capital \$1,914,314. So that from the opening of the road to the present time, the stockholders have received from its earnings \$879,138, and the expenditure for general objects of capital has been \$2,158,509. The ratio of expenses to receipts prior to 1837 was 72 7 per cent., and from 1837 to 1847 the ratio has been 55 7 while the excess of current re-ceipts over current expenditures prior to 1837 was \$391,333, and subsequent to 1837 it has been \$2,158,500.

In yielding to the necessity which has thus been explained, the board have only followed the example of all others engaged in the ma-negement of similar works, practising, as they believe, not less economy than any other ad-ministration of railways that they might be required to imitate; and while it may be ex-pected of the public at large to be satisfied with so liberal a provision for the accommo-dation of the business, the stockholders, in view of the ultimate benefits to flow from it, will, it may be hoped, be content with a policy dictated no less by the necessity of the case, than their own duty and true interest.

The result of this policy, and the economy with which it has been carried out, as well as the beneficial effects upon the interest of the stockholders may be seen in the pro-gressive improvements in their own enter-prize, and in its present condition and future ad-vantages.

The influence of the administration of the present board cannot be traced to an earlier period than the middle or close of the year

1837. In that year the length of the road being 82 miles, only 157,102 passengers and 66,703 tons of freight were carried in the cars, and the machinery imperfectly adapted to that amount of business; in the present year upon a road of 178 miles, there have been transported 288,674 passengers and 263,334 tons, and unless from sudden accumula-tion at unexpected and temporary periods, there has been no deficiency of power or means. Anterior to the year 1837 and up to the year 1835, there had been only five small dividends varying from 37 1/2 cents to \$1.12 per share, and from 1835 to 1840 no dividend had been declared.

In 1837 the outstanding current obligations of the company were not less than \$130,000, and the aggregate expenses of working the road only, was at least 95 cts. in the dollar! As might have been expected from this result the power and machinery of the company were inadequate even to the inconsiderable business of that period, and only \$750,000 of the original subscription remained unpaid, and that must in a few years only have been needed for the payment of debts and for the augmentation of machinery, leaving other objects of expense swelling beyond any re-sources at the command of the company.—How long, under a continuance of such cases, the road could have been kept in operation it would now be needless to conjecture. At the end of the year 1840, a period of two years, the remaining capital had been called in, punctually paid and applied to the reduction of the inclined planes at Par's ridge, to the removal of other sources of perpetual and wasting expense, and to the augmentation of machinery of all kinds. During the same time an improved system of repairs of road-way and machinery was adopted, the out-standing obligations of the company were fully discharged, and a dividend of two dollars per share was paid to the stockholders out of the net earnings. During those two years the construction of the road west of Harper's Ferry was commenced under circumstances in many respects unpropitious, and as early as the month of November, 1842, from the proceeds of the city subscription of 3,000,000 and the application of a considerable portion of the annual receipts, was completed as far as Cumberland, a distance of 96 miles, at a cost of not less than \$3,623,606.28.

During the period subsequent to 1837, a dividend to the stockholders was intermitted for a single year only, the earnings of the year 1842 having been applied to the exten-sion of the road from Harper's Ferry to Cumberland. In 1841 and 1843 the dividend was \$2 per share, in 1844 \$2.50 per share, and in 1845 and 1846 \$3 per share.

The comparative progressive improvement in other respects during the same period sub-sequent to 1837 is not less striking. In that year the company owned only 14 locomotive engines, and these of the fourth or smallest class, of which some were actually unfit for use, and the whole, more or less, in an im-perfect condition. From that time to the pre-sent the motive power of the company has been increased by construction or otherwise

of 13 of the largest class, 2 of the second, 12 of the third and 11 of the fourth class, in all 38, and in actual capacity equal to 72 of the class of those employed in 1837. The aug-men-tation and improvement in the number and condition of the cars and other machin-ery may be taken to be in the same propor-tion.

In 1837 the cost of repairs of road and bridges, the latter being comparatively few in number, was not less than at the rate of \$1.203 per mile of road, and at the end of 1846 before the occurrence of the adventitious and temporary causes adverted to and explained in the report of the chief engineer hereto ap-pended, notwithstanding an increase of nearly three-fold in the business of the road, and a considerable addition to the number of timber bridges, the cost of similar repairs did not exceed \$918 per mile of road, being about 25 per cent. less than at the former period. The cost of repairs of machinery, engines and cars, in 1837 was at the rate of 20 3/4 cts. per mile run by the locomotives with trains, and in 1846 the cost did not exceed 16 1/4 per mile run, being little more than one-half of the former cost, although the trains hauled in the last year were in all instances consider-ably larger. In 1837 the aggregate expenses of working the road, exclusive of the ex-pense of horse power in the streets of Balti-more, and over the old inclined planes at Parr's ridge, was at the rate of not less than 173 cents per mile run by the locomotives, and in 1846 the same expenses did not exceed the rate of 59 8 per mile, nearly two-thirds less than in the former period.

It has been already stated that the propor-tion of the expenses of working the road to the gross receipts in 1837 was as much as 95 per cent.; and it may now be added that in 1846 the same expenses did not exceed 52 per cent. of the gross receipts. It must be observed, moreover, that this great reduction has been effected under the influence of a vastly augmented trade, of a continued dilapidation of the old and imperfect track, of a considerable multiplication of timber bridges and of a reduction in the charges for trans-portation of more than 35 per cent. below the rates of 1837.

Excepting in Great Britain, where the rates of charges are high and the wages of labor low and where the receipts from pas-sengers, always the chief source of profit on railways, are much greater in proportion to those from burthen transportation, the ex-penses of working railways rarely if ever fall short of 50 per cent. of the gross receipts, and in most parts of the continent of Europe and elsewhere, they more frequently exceed that ratio. It is to be observed, moreover,

that this proportion is seldom or never main-tained except in the instances of new and well constructed railways with the most improved rail and form of structure, and with the aid of other advantages indispensable to the cheap management of such works, and where the receipts from profitable passenger travel con siderably exceed those from the transportation of burthen. Independently of the railways in England, the ratio of expenses of the gross

receipts, and the economy in the working of the Baltimore and Ohio railroad, will be found to compare most advantageously with all the European works, the former being less and the working cheaper than upon the European works.

The roads in New England possess most of the advantages of newness and strength of construction, of liberal charges and large trade, and from the density of a general and manufacturing population derive larger receipts from passenger traffic than from tonnage; and are also universally conceded to be conducted with commendable regularity and economy. They possess besides many material advantages peculiar to that part of the Union which would enable them to attain a superiority over even the skill and economy of European works, which it would be difficult successfully to imitate.

With all these advantages, an investigation into the comparative cost and expenses of working the Baltimore and Ohio railroad, and of the principal New England roads, according to information derived from authentic sources would still further illustrate the economy with which the operations of this road have been conducted.

The average cost per mile of 12 of the principal railroads of New England, including their necessary equipment, may be stated at \$46,000, and that of the Baltimore and Ohio railroad, including the 30 miles reconstructed during the past and preceding years, may be taken to be about the same. If the cost of reconstructing the remaining portion of the old track, and of the alterations now in progress, be added, the average cost of the road would be more than \$50,000 per mile. The average of all the expenses upon 11 of the principal New England roads per mile run by the locomotives with trains, during the year 1846, was not less than 78 1 cents; and that upon the Baltimore and Ohio railroad during the same period, exclusive of the cost of horse power in the streets of the city, was, as before stated, not more than 89 8 cts. showing a difference of nearly 25 cents in favor of this road.

The average of the proportion of expenses to the gross receipts upon the 11 New England roads, during the year 1846, was a fraction over 50 per cent., and that of the Baltimore and Ohio railroad, during the same period may be stated at not more than 52 per cent. If, in regard to this part of the comparison, the superior construction and comparative newness of the New England road, their exception from the employment of horse power in cities, and the greater amount of passenger traffic in proportion to that of burthen be taken into consideration, (that on the Baltimore and Ohio railroad being \$854,916 14 from tonnage, and only \$447,020 14 from passengers) the cheapness of working the road could not be denied. Of all these facts, and grounds of comparison therefore, it may be safely predicated that, as soon as the old track of the Baltimore and Ohio railroad shall be thoroughly reconstructed, and by an adequate provision of motive power and other machinery and of depot buildings, necessary

for its general purposes, the entire road shall be placed in a finished state, the general expenses will not exceed the best economy upon any other work.

Notwithstanding, however, the confidence of the board in the results already adverted to, and in the general system of management gradually adopted subsequent to the year '37, they have not been insensible to the necessity of adapting it, from time to time, more perfectly to an extended road, to a rapidly increasing trade, and to the great augmentation of power and machinery demanded by the increasing business. The accumulated business in the year 1846, and the new approach of the periodical renewal of the timber of the road over its entire line, presented an appropriate occasion to revise the general system of management, and in the month of November last the president suggested a scheme of a modified system and invited the attention of the board to the necessity of a particular examination into the present organization of the company, and to the introduction of some reforms which he thought might be advantageously made.

H^r also asked the appointment of a committee by whom he might be assisted in the investigation, and in maturing the reforms that might be deemed expedient. The principal objects to be attained by the proposed modifications consisted in confining the general supervision and superintendence of all the departments nearer to their duties, and, by a judicious subdivision of labor, to insure a proper adaptation and daily application of the supervisory power to the objects under its immediate charge; in the multiplication of checks, and to effecting a strict responsibility in the collection and disbursement of money; in confining the company's mechanical operations in their shops to the purposes of repairs rather than of construction; in promoting the economical purchase and application of materials and other articles needed in every class of the service; and in effecting a strict and more perfect responsibility in the accounting department generally.

After diligent investigation, with the aid of the experience of other roads in New England and elsewhere, the committee proposed to attain the foregoing objects by confining the departments of transportation, of the construction and repairs of the road, and of the repairs of machinery to a separate superintendence, under the immediate supervision of the chief engineer acting as a general superintendent over the whole.

They also subjected all these officers and all other principal agents to an annual appointment, and required satisfactory security for the faithful performance of his duties from each. They also adopted measures for the purpose of confining the receipt of money to as few agents as possible, and for ensuring the prompt payment from all of moneys received by them; and they prescribed a new and securely guarded system of tickets recommended by the best experience in other companies, and adopted checks upon conductors and other agents which were thought would prove effective in enforcing a rigid ac-

countability from all. They revised and remodeled the system of accounts, and by bringing them into the company's office, effected a daily accountability and settlement of the account of each of the agents by the treasurer and secretary under the immediate supervision of the president.

It is not proposed in this place to do more than indicate the general features of the modified system now adverted to. It was adopted by the board as proposed by the committee, and, as far as can be inferred from its operation, it is believed that with such improvements as practical experience may suggest, it will fully realize the advantages expected from it, and effect all the security of which the case is susceptible. It may be further observed that, although in the execution of the system the duties of some of the old agents were materially changed, and in some instances the employment of new ones was required; yet it has been so arranged as that by reducing the salary of those whose duties had been lessened, the aggregate expense of the whole is less than was paid under the system it superseded. The report of the chief engineer, hereto appended, will not only disclose the present working of the system so far as tested by practical experience, but also contains in addition a general professional exposition by that officer, of the state of the road and machinery and of the working and operation during the year; and by its statements on these points will dispense with further observations in this report upon the same topics.

SECOND—OF THE WASHINGTON ROAD.

The affairs of the Washington road are shown by the statements D. and E.

It will appear from these statements that there has been a falling off in the receipts from this road, and that the diminution has been in the passenger traffic. During the past year the number of passengers has been five thousand four hundred & three less than in the year 1846, and the amount of revenue received from this source has been eleven thousand eight hundred and nineteen dollars less than in the preceding year. It may also be stated that during the past year there was an increase in tonnage transportation of 3,109 tons, and of \$2,198 87 in the revenue from that source over the year 1846. It may be inferred, therefore, that the experiment of a reduced charge authorized by the board in the years 1845–6, has not realized the expectations by which it was recommended; and the conclusion would seem to be warranted that the lowest charges do not uniformly increase the amount of travel.

It will, therefore, become the duty of the board to reconsider the subject with the benefit of the experience they have already had; and to make such addition to the present charges as a full investigation may be found to authorize. The net profits from the Washington road, including the surplus of \$6,724 19 remaining after the dividend in April last amounted to the sum of \$48,131 66, of which the board have declared a further dividend for the last six months of \$2 50 upon each share of stock, leaving a surplus of \$6,881 66

to be carried to the account of the current year.

To be Continued.

Railway Accidents in Great Britain.

We find in the London Mining Journal of Sept. 26th, the following summary of railway accidents during the six months ending June 30th, 1847. The proportion is greater, it seems to us, than heretofore,—being one death in 29,000 passenger carried, if we include the deaths occurring among the people employed upon the roads, and by the companies—but only one passenger in 1,050,880 carried.

In a Parliamentary return, presented to both Houses by command of her Majesty, respecting the number and nature of the injuries to life and limb which have occurred on the railways in Great Britain and Ireland, from the 1st of January to the 30th of June, 1847, as reported by the various railway companies to the Commissioners of Railways, minute details are given, by analysis, of the returns recorded in the office of the Commissioners of Railways—Duncan McGregor, Registrar.—It appears that of the 101 persons killed and 100 injured, on all the railways in Great Britain and Ireland, during the six months ending the 30th of June, 1847, there were—

14 Passengers killed, and 48 injured, from causes beyond their own control.

8 Passengers killed, and 3 injured, owing to their own misconduct, or want of caution.

8 Servants of companies killed, and 17 injured, from causes beyond their own control.

21 Servants of companies killed, and 24 injured, owing to want of caution, or recklessness.

10 Trespassers killed, and 7 injured.

1 Person killed, and 1 injured, while crossing the railway at the level crossings, owing to misconduct of servants of the company.

And for the same period, the number of passengers amounted to 23,119,412.

Speed and Power of Locomotives on the Narrow Gauge.

The following account of the performance of the Locomotives—"London" and "Snake," is given by the London Herald of Sept. 1st. It shows that there has really been some improvement in Locomotive Engines since October, 1846,—when those allowed to compete, on the Liverpool and Manchester Railroad, for the prize of £500, were not to exceed *five tons* in weight, and were required to haul twenty tons, on a level road at the rate of *ten miles an hour*!—

Who will fix the limit of performance for the Locomotives built at the expiration of another period of eighteen years—or in the year 1865?

During Monday and Tuesday, (says the London Herald,) we availed ourselves, through the courtesy of Mr. Crampton, the Secretary, and Capt. Huish, the general manager of the London and North Western Company, of several opportunities of witnessing the workings of Crampton's engine, the *London*, and Stephenson's engine, the *Snake*. The results prove that we were correct in stating, that the narrow-gauge engines are having their capacity for speed and power slowly, but steadily, increased.

On Monday we took a trip down with the

Snake, which was attached to the 10 o'clock morning mail train—down also with the *London*, which was attached to the 5:30 afternoon stopping train, and up from Wolverton in the evening, with the same engine attached to the night express train. Yesterday morning we again went down with the 10 o'clock mail express, taken, as on the previous morning, by the *Snake*, and in the afternoon with the *London*, which was coupled to the 5 o'clock express train.

It was understood, on the Saturday, that the two engines were to take the 10 o'clock morning mail express down to Wolverton on alternate days; but it was subsequently considered, that it would be the fairer way to make the *London* work trains similar to those that had been previously taken by the *Snake*. The result of this determination was, that the *Snake* worked the morning express-mail on Monday and yesterday, but the order for her to take out the train on Monday reached those in authority at the Camden Town station at an hour that gave the driver scarcely time to get his engine in the best possible order. She came down the Camden Town incline, it is true, with hot water in her tender, but not quite so hot as could be desired in what might be termed an experimental trip. The train on Monday morning was late, and a slight side wind prevailed throughout the trip to Wolverton. The following is the working in detail. The load taken was 11 carriages, or about 55 tons.

It is to be recollectcd, that, for nearly the whole distance to Tring, 32 miles, the line rises above 16 feet per mile.

Started from Euston-sq ^{r.}	h. m. s.	Miles per Mile.	Miles per hour.
Euston-sq ^{r.} .	10 11.45		
Mile post:		m.	
1-1	20.29		
5	21.49	1.19	45.6
6	23.6	1.18	46.9
7	24.34	1.18	46.9
8	25.49	1.94	42.9
9	27.17	1.29	40.4
10	28.47	1.30	40.0
11	30.16	1.29	40.0
12	31.43	1.97	41.4
13	33.3	1.20	45.0
14	34.36	1.13	43.4
15	35.48	1.29	43.9
16	37.07	1.19	45.6
17	38.29	1.15	48.0
18	39.41	1.19	45.0
19	00.00	0.00	0.00
20	42.18	2.37	46.7
21	43.49	1.31	41.5
22	45.04	1.25	42.4
23	46.30	1.29	41.9
24	47.53	1.33	43.4
25	49.16	1.23	43.4
26	50.38	1.23	43.9
27	00.00	0.00	0.00
28	53.30	2.53	41.9
29	00.00	0.00	0.00
30	57.57	1.32	31.1
31	00.00	0.00	0.00

Arrived at Tring 10 h. 59 m. 12 s.

The remainder of the journey to Wolverton, over a falling gradient, was performed at an average running velocity—that is, when the engine had got into full work, of about 47½ miles per hour.

The next trip was with the *London*, which took down 15 carriages, or about 75 tons. The train was a stopping one, and the driver was required merely to keep his time at the stations. This he did within a few seconds,

between the 35th and 39th mile-posts, the river appeared to have put on something like the power of the engine, and we noticed the work to be as follows:—

Mile posts.	h. m. s.	Miles per mile.	Miles per hour.
35	6.43.09	0.00	00.0
36	0.44.16	1.08	52.9
37	0.45.20	1.06	55.4
38	0.46.25	1.04	56.3
39	0.47.36	1.06	55.3

The return trip with the *London*, with the night express, was, excepting the down working made by her yesterday, when attached to the five o'clock express, the best we have ever witnessed on a narrow gauge. The train consisted of ten carriages, weighing about 50 tons, exclusive of the engine and tender. The tender is a very capacious one, and was originally intended to carry sufficient water for a train to run to Rugby (83 miles) without stopping. It weighs 20 tons, or between 5 and 6 tons more than is necessary, so that the engine may be fairly said to have taken a train of 11 carriages, or 55 tons.

The train should have started at 9:30, but did not leave Wolverton till 9:46:30, or 16 minutes after time. We arrived at Tring, about 21 miles from Wolverton, at 10 h. 4 m. 5 s., and made a stoppage there of 4 m. 15 s. Between Tring and Walsford, we occasionally caught sight of the mile-posts, and found that the speed was from 62 to 64 miles per hour. On emerging slowly from the Primrose hill tunnel, the driver had the red signal against him, and he brought his train to a state of rest about 150 yards on the tunnel side of the Chalk Farm bridge, at 10:52.5, having run about 30 miles in 33m. 45s., including the time lost in getting up speed when departing from Tring, and in running slowly through the Primrose-hill tunnel, and coming to a state of rest. The average speed, over about 28 of these 30 miles, was 60 miles per hour.

The morning mail, taken down yesterday by the *Snake*, consisted of 14 carriages, weighing about 70 tons. The average speed, from the 4th to the 31st mile-post, was about 41 miles per hour.

The best trip yet made on the narrow gauge, was the *London*, with the 5 o'clock express train on Tuesday afternoon. It consisted of eight carriages, weighing 40 tons. We went down with Captain Huish, who was evidently much gratified with the high and regular speed maintained over the heavier gradients between Euston-square and Tring. The train, though weighing 40 tons, may be fairly estimated at 45 or 47 tons, when we bear in mind the perfectly unnecessary addition of some 5 to 7 tons weight of Mr. Crampton's tender. The train left Euston-square at 5 h. 1 m. 45s., and performed the first 4 miles in 6 m. 14 s. The 5th mile, which is partly on a rise of 1 in 603, and partly on a level, was gone over at the rate of 49.3 miles per hour. The 6th mile is on a level, and was done at the rate of 61.4 miles per hour. The 7th is on a falling gradient of 1 in 1606, and this was gone over at nearly 54 miles per hour. We have then a rising gradient of 1 in 341, for up-

wards of 5 miles, and over this the working was as follows:—

Mile post.	h. m. s.	Time per mile.	Miles per hour.
7	0.11.29	0.0	0.0
8	0.12.37	1.8	52.9
9	0.13.46	1.9	52.9
10	0.14.55	1.9	52.9
11	0.16.3	1.8	52.9
12	0.17.13	1.10	51.4

The remainder of the line up to Tring is chiefly on a rising gradient of 1 in 330. The following is the working over it:—

Mile post.	h. m. s.	Time per mile.	Miles per hour.
13	0.18.26	1.13	49.3
14	0.19.40	1.14	48.6
15	0.20.52	1.12	50.0
16	0.22.0	1.5	62.9
17	0.23.5	1.5	55.4
18	0.00	0.00	0.0
19	0.00	0.00	0.0
20	26.19	3.14	55.0
21	26.24	1.05	55.4
22	28.29	1.05	55.4
23	29.34	1.05	55.4
24	30.39	1.05	55.4
25	31.44	1.05	55.4
26	32.49	1.05	55.4
27	0.00	0.00	0.0
28	34.59	2.10	55.4
29	0.00	0.00	0.0
30	37.13	2.14	53.7
31	38.22	1.08	52.9
Stop'd at Tring	39.56	0.00	0.0
Started from " 41.58	0.00	0.0	0.0
32	0.00	0.00	0.0
33	43.40	0.00	0.0
34	44.41	1.11	50.7
35	45.48	1.04	56.3
36	46.45	1.00	60.0
37	47.44	0.59	60.5
38	48.44	1.00	60.0
39	49.44	0.59	60.5
40	0.00	0.00	0.0

At Leighton the red signal was against the driver, who brought the train slowly up. About a minute more than the usual time was lost in doing this. The London had gained about 10 minutes, and it was found that a luggage train was ahead. This occasioned a stoppage 8 min. 15 sec. at Leighton. The working of the engine from Leighton was—

41	6.1.49	0.00	0.0
42	3.4	1.23	43.4
43	4.19	1.14	45.6
44	5.26	1.7	53.7
45	6.38	1.12	56.0
46	7.50	1.12	56.0
47	8.56	1.6	54.5
48	9.59	1.3	57.1
49	11.2	1.3	57.1
50	12.5	1.3	57.1
51	13.12	1.7	53.7
52	0.00	0.00	0.0
Arrived at Wolverton	6.15.8.		

This shows the 31½ miles over the heavy gradients to Tring to have been done, including the time lost in getting up speed, running up the Camden Town incline, and in coming to a state of rest at Tring, in 38 min. 11 sec., or, at an average velocity from station to station of 50 miles per hour. Deducting the 2 min. 2 sec. lost at Tring, and the 8 min. 15 sec. at Leighton, the running time was 1 hour 2 min. 6 sec. for the 52½ miles. But the London would have done better even than this, had she not been obliged to run with great caution over some portions of the line between Tring and Leighton, where large numbers of laborers are engaged on the permanent way. Mr. Maddigan, of the London and North-Western Company, and M. Audibert, one of the engineers of the French Government, rode on the engine, and both expressed themselves in high terms of its great steadiness at its highest velocity. We have no doubt that some one of the new narrow-gauge engines, now in the course of construction, will equal the workings we have given above of the London, but we question whether they will be quite so free from jumping, and unpleasant, not to say dangerous, oscillation. If the road to Wolverton were clear, Crampton's engine, would, we think, take 50 tons over the 53 miles in from 58 to 60 minutes!

We should like to see the London take the 10 o'clock morning express mail with a load similar to that taken by the Snake on the 28th of August—viz., 14 carriages. We think the London would find it a difficult matter to perform a better average working—we question whether she would equal the average then maintained with 70 tons. The Snake, on that occasion, maintained an average velocity of between 45 and 46 miles per hour from the 4th to the 31st post—a first rate working, with a 15-inch cylinder, and up an average rising gradient of about 14 or 16 feet per mile.

Atmospherical Railway on a New Plan.

The following description is taken from the London Mining Journal, and is given by the Editor, as the result of his own observation, or we might pass it by as one of the many schemes put forth by ingenious men, more useful in theory than in practice—but as he was much better able to understand it from the working model than from the drawing; so may we be, when we see it at work, than we are now after reading his description of it. It may, however, be more readily understood by our readers and we therefore lay it before them.

Novel Mode of Pneumatic Railway Transit.—We have during the week, had an opportunity of inspecting a model, descriptive of a novel mode of propelling carriages on railways, which, although in the specification and diagrams we had previously seen appeared complex, and even, as we considered, perfectly "utopian," does, we must confess, show a very different complexion when thoroughly investigated and the model seen in action. The principle, though dependent on the power of the atmosphere, must not be classed with any of the previously-described plans—all of which, more or less, are based on the longitudinal opening system; the merits and superiority of which, of course, lie in the best method of obtaining a perfect close joint, and which has, doubtless, been most successfully accomplished by Clarke and Varley, in their very perfect and simple arrangements, which we have so often described and remarked upon, on previous occasions; and which, we still feel confident, are capable of doing all which we have ever given credit for, and all the patentees ever claimed for their elastic tube system. The great object of the inventors of the system under notice has been, to mature a plan for superseding the expensive and dangerous locomotive engine, by substituting one which, while it combines great speed, little friction, perfect safety, and every detail connected with it un-

der the most complete command, should be capable of embodying the whole force of the moving power in the propulsion of the train; and thus establishing a system of economy, which the most earnest supporters of the locomotive engine could never dream of.—How far they have succeeded will be best judged of by an inspection of the model and drawings; to us, it certainly appears that they have obtained, in a most eminent degree, all those great essentials to railway transit, and that their plan is another link in the chain by which the mind is bound to the opinion, that "railways are yet in their infancy." In attempting a description of this ingenious contrivance, we would first observe, that the principle is absolutely that of the locomotive reversed, inasmuch that, instead of the engine acting directly on the driving wheels, and thus requiring an enormous amount of weight, and consequent friction to obtain the necessary grip, or bite, on the rail, they have made the driving wheels stationary, and placed them in such situations, that they take hold of the train as it advances; and, however absurd it may appear, without investigation, we have no hesitation in saying that, on a line in good condition, from London to Birmingham, with four stationary steam-engines of moderate power, a train once started, would arrive safe at its journey's end without further human intervention—it being, in fact, the absolute agent of its own motion, although not the prime mover.

The model, which is now open for public inspection, is a circular platform, 14 ft. in diameter, on which are laid a double line of rails of about 7½ in. gauge, or on a scale of one-eighth, or 1½ in. to the foot, compared with a proper working line; the carriages, and every part of the model are, of course, in the same proportion. Around the inner circle of this platform is laid a pipe of three-quarters of an inch in diameter, which is carried down to the basement story of the house, where it is connected with a pair of air-pumps, worked by a small steam-engine, which, when in operation, keeps up continually sufficient vacuum for the purpose of propelling the trains. It is in this continuous vacuum that the whole principle and its novelty consist.

Before proceeding further, we will endeavor to make our readers acquainted with what the patentees call an air-engine; but which we think would with much more propriety be termed a vacuum-engine. It consists of a cylinder, with piston and double-action valves, precisely similar to those of a high-pressure steam-engine, but of the greatest simplicity, as a crank and pulley, attached to the top of the piston-rod, is all the machinery connected with them. A pair of these is placed at three different points on the model, which represent 100 yards between each in actual practice, or 18 pair to the mile; they are placed in connexion with the vacuum tube, and, by opening a valve, are immediately set in motion by the external pressure of the atmosphere on the piston—Between each pair of vacuum-engines are placed three horizontal wheels—one on each

side, and one in the centre—all three being connected, and put simultaneously in motion by the engines already described, of such dimensions, that their peripheries range are exactly even with the rails; the valves for connecting, or cutting off, the passage from the vacuum tube to the side engines, are regulated by levers, on the end of which are small friction rollers; and at stations there will also be an arrangement for regulating by an attendant in addition. Along the whole line of carriages outside the wheels, are placed wooden rails, connected by tubes, passing under the carriages, in which tubes are spiral springs; and, by a longitudinal bar passing under every carriage, and connected together, the guard can, by a screw lever in the front, with the greatest facility, increase or lessen the distance between these wood rails. This part of the invention is highly ingenious, and of the utmost importance to the principle, but can hardly be explained without a drawing. The rails are on a level with the horizontal wheels.

At the terminus it is proposed to have two pairs of vacuum engines, to give a greater momentum at starting. The *modus operandi* is as follows:—We will suppose the guard carriage of a train to be placed between the first set of horizontal wheels at the terminus of a railway—the steam engine regularly working—sufficient vacuum obtained, and the word given “all right” the attendant immediately opens the communication to the vacuum engines, which immediately set the horizontal wheels in motion, and the train is propelled by the tight grip which the horizontal wheels have on the side rails of the carriages, with sufficient momentum, let it be ever so short to carry it to the next pair of vacuum engines. The ends of these side rails are so arranged, that they form incline planes, and then pass on to the friction rollers, and press down the levers, which open the communication with the vacuum engines; these immediately set in motion their set of wheels, give fresh momentum to the train, which rushes on to the next pair, and so on throughout the line; an incline plane on the rails of the last carriage presses down each lever of the vacuum engines after they have done their works, and cuts off the communication. When the guard wants to go slow, or stop, he has only to contract the wooden rails, when the grip on the horizontal wheels being taken off, the motion slackens, and by putting on his break he stops. During the experiments we witnessed, the mercury generally indicated a pressure of about 5 lbs. on the inch.

One great advantage exists, that by the motion of a lever at a station, which reverses the action of the horizontal wheels, trains can be backed with the greatest facility. On a railway it is proposed to have a copper tube, of about 10 lbs. weight to the yard, and corrugated at certain distances to give it strength, which will be laid under ground, outside of the rails, the entire length of the line, and, of course, connected at every hundred yards with the vacuum-engines. It will be seen that, by employing a close tube, sim-

ilar to a gas pipe, no leakage can occur from a defective longitudinal valve; and, as the number of the strokes of the pistons of the vacuum-engines will always be in proportion to the length of the train, the interruption to the vacuum, and the only one, can be calculated to a nicety. Another fact, and a curious one, in connection with this system is, that no matter how long, or how short a train, there will always be a proportional amount of power for its propulsion—for, whether 20 or 90 yards long, it will receive sufficient momentum to be carried to the next propellers; if a little above 200 yards, it will have three pair in action at once; and, if even a mile long, it would then have 18 pairs. Here, also, there is no piston in the tube, or work hidden from sight, and difficult to get at in case of repairs. An injury to one vacuum engine is of no consequence, as each move a whole set of horizontal wheels; and, as a stock of every material would, of course, be kept in duplicate, another engine would be clapped on, and the injured one moved to the workshop for repair. With respect to expense, it might, at first sight, appear, that the system was complex, and, consequently, only to be established at great cost—when, however, it is remembered that very light rails would be amply sufficient, that the copper tube could be obtained at about 10s. per yard, the vacuum engines and horizontal wheels, being simple and inexpensive, and made in large numbers, would not be costly, and that few and small steam-engines would do all that could be required, it will be seen that a line on this system could be laid down on very economical terms; in fact, the patentees, Messrs. Cunningham and Carter, would undertake to lay down a double line of rails, with every item prepared for the running of the trains, for 4000*l.* per mile.

CRADDOCK'S IMPROVED LOCOMOTIVES & STATIONARY ENGINES.

We find in the Mining Journal, for September 18th, the following remarks—accompanied by a cut of a locomotive—in relation to improvements said to have been made by Mr. Craddock upon the steam engine. We omit the cut, and the paragraph describing it more particularly, and give now only such portions as speak of it in general terms—but may hereafter, when we hear more of it, give the cut and details.

Craddock's Patent Universal Condensing Steam Engine.—We have, on former occasions, noticed several improvements in the steam engine, patented by Mr. Thos. Craddock, of Birmingham, and we have now before us a pamphlet, descriptive of some further patented arrangements, by which the whole is much simplified, and rendered more available and economical. They are illustrated by 10 elaborately detailed diagrams, showing how the entire improvements may be rendered available to every kind of engine—stationary, marine or locomotive. It may be remembered, that the principal part of Mr. Craddock's improvements consists in his mode of condensing the steam, and returning the water to the boiler—thus causing a continual and freer circulation between it and the en-

gine; and for situations, in particular, where water is scarce, the importance of this circumstance alone must be appreciated by every engineer. The patentee calculates that a forty-horse power engine can be worked with 20 gallons of water, while the non-condensing engine requires 4000 gallons per day; the Cornish engines, 16,800, and a Boulton and Watt engine, of the same power, for steam and condensation, 78,400 gallons per day.—The leading features of the system it will be seen, are—the furnishing the means requisite to the fullest development of the expansive powers of steam, and enabling it to be condensed, in *all* situations, by water, where it is obtainable, and, where not attainable, by the atmosphere; in short, a modification of Wolff's engine—combining, in every shape, simplicity, compactness, and an extraordinary degree of economy. The diagram, at the head of this article, is descriptive of the application of the air condenser to a locomotive engine, with angular set cylinders, and the two connecting rods taking hold of one driving wheel on each side. The condenser is seen in front and consists of a number of vertical tubes, formed by connecting plates, at top and bottom, into one whole cylinder; this is made to revolve at a rapid rate, and thus presents every part of the tubular surface to continually-changing and fresh currents of cold air, by which rapid condensation takes place.—The steam is admitted at the top of the condenser; and, as the water from the condensed steam falls to the bottom, it is taken up by a small pump, and forced into the boiler—scarcely any waste thus taking place, and securing the extraordinary results above mentioned.

There is, of course, in this, as in the locomotive engine we have described, a high and a low pressure cylinder. The steam is employed by Mr. Craddock at 100 pounds pressure to the inch, and then expanded to six times its volume before condensation—the steam chest, boiler and apparatus, being made proportionally strong; and on this highly important point we cannot do better than give the inventor's own words. He says:—“But here comes that bug-bear, which has so long frightened mankind from a dispassionate use of steam at such pressure—viz: its danger. It is high time that scientific men should, at least, grapple with this delusion, and calmly consider whether, with such boilers as are here submitted, such pressure is not only as safe as the pressure now used in the common boilers, but very much safer than *any*, even low pressure boilers—while it is demonstrable that 1lb. of coal will produce sevenfold the mechanical effect to that which would result was the steam used without expansion.” After minutely describing the whole 10 diagrams, containing various descriptions of engines, with his improved steam valve, with and without steam box, air pump, and stop-off valve, which we cannot clearly delineate without the diagrams, which are too numerous for our columns, Mr. Craddock gives a series of six tables, illustrative of the economy and large amount of power obtained by working the steam expansively on the high

pressure system. The results brought out are startling—showing, in marine engines, a saving of fuel per 1000-horse power per annum, supposing eight voyages to be made, in that period between Liverpool and New York, of 7952 tons, and a further saving, in pounds sterling, from increased tonnage, for merchandise, of £49,200 per annum—making a total saving, per 1000 horse power per annum, of £57,649, and per 100,000-horse power, for the like period, of £5,764,900. In locomotive engines the saving would be enormous. Mr. Craddock calculates that the saving effected on £310,800, being the cost of coke on the railways open in 1845, would amount to £286,487, or 82½ per cent., and on the whole locomotive expenses, 29 per cent. This would give an increased available dividend of 16s. on every £5; and, if to this be added the increased economy generally, which would arise from the use of the system, the saving would increase the value of such railway property *one-fifth!* These results, if founded on practice, are most important to capitalists, shareholders, and all connected with the steam engine; and as Mr. Craddock has, for a number of years, devoted his energies to the principles and improvement of its machinery in general, we have no reason to doubt the correctness of his conclusions. The pamphlet should be in the hands of every engineer.

A New Rotary Steam Engine.

We visited the new Steam-Engine known as Schenck's Rotary, now in operation at "the Archimedes Works" of Dunham & Browning, in North-moore near Washington st. The Engine was regularly at work driving powerful machinery, and, though built for twenty-five, is found to be practically of forty-horse power. To say that any invention is perfect would be rash; but, having seen this operation in various ways beside that in which it was regularly employed, we are convinced that it possesses these advantages over the ordinary engine:

1. The Rotary motion is original and complete, without any waste of power or possibility of interruption like the "stopping on the centre" well known to all who work with steam.
2. This Engine occupies not more than one-third the room required by the old ones.
3. It is less than half the weight of an ordinary engine of equal power—a vital consideration in steamboats, on railroads, etc.
4. It requires much less fuel—a fact of great importance in view especially of the rapid extension and increase of Ocean Steam Navigation.
5. It costs considerably less money than any other engine of equal capacity.

This last is a circumstance quite adverse to what is usual. Generally, when a machine is invented to save labor or fuel, or to increase power, it must encounter the drawbacks of increased cost. Manufacturers and operators of machinery are weary of looking at inventions, which promise to save them so many hundred dollars per year, but require an immediate outlay of perhaps thousands to effect it. But here is an invention which

economises not only in future but first cost, giving treble power from the same weight of metal and on the same area of space, while you have less to pay for it than for any other of equal force. There can be little doubt that it will rapidly supersede all others; indeed, we cannot see why an old fashioned Engine should ever more be ordered or constructed by one who has examined this.

We cannot describe this engine so that it shall be understood without diagrams by the reader. It consists in good part of a moving cylinder inside of a stationary one, the steam passing into the former and being employed to turn the latter by means of great simplicity and directness, so as to effect an immense saving of contrivances and gim-cracks hitherto found necessary to convert the straightforward pressure of the steam into the momentum of a rotary motion. All persons interested in Manufactures or Machinery, or who expect to be so, should examine this Engine without loss of time.—*Artisan.*

Delaware, Lehigh, Schuylkill and Susquehanna Railroad Company.—This company, pursuant to the directions of the act of assembly, held an election for officers on Thursday, the 21st inst., in Easton, which resulted as follows: President, James M. Porter.—Managers, Dudley S. Gregory, John S. Durrey, John P. Jackson, Daniel McIntyre, John N. Hutchinson, and Edward R. Biddle.—Treasurer, Robert L. Schuyler. Secretary, John N. Hutchinson.—*N. A. & U. S. Gaz.*

GILLESPIE'S WORK ON ROAD MAKING.—A Manual of the Principles and Practice of Road making, comprising the Location, Construction and Improvement of Roads, (Common, Macadamized, Paved, etc.) and Rail Roads, by W. M. Gillespie, Professor of Civil Engineering in Union College. Published by A. S. Barnes & Co., 51 John St., New York.

LINDSAY & BLAKISTON } Philadelphia.
GRIGG, ELLIOT & CO. } Philadelphia.

RECOMMENDATION FROM PROFESSOR MAHAN.

"I have very carefully looked over Professor Gillespie's Manual of Road Making. It is, in all respects, the best work on this subject with which I am acquainted; being, from its arrangement, comprehensiveness and clearness, equally adapted to the wants of Students of Civil Engineering, and the purposes of persons in any way engaged in the construction or supervision of roads. The appearance of such a work, 20 years earlier, would have been a truly national benefit, and it is to be hoped that its introduction into our seminaries may be so general as to make a knowledge of the principles and practice of this branch of engineering, as popular as is its importance to all classes of the community."

(Signed,) D. H. MAHAN,
Professor of Civil Engineering in the Military Academy of the United States."

TO RAILROAD CAR BUILDERS.—SEALED PROPOSALS will be received by the undersigned up to SATURDAY, the 6th of November, inclusive, for the construction of 20 HOUSE CARS, for freight, 2 BAGGAGE CARS and 2 MAIL CARS, according to plans and specifications which will be furnished, and for which proposers are referred to the Master of Machinery, at the Company's Mount Clare Depot, Baltimore, who will be prepared to exhibit them on and after the 25th instant.

The House Cars to be delivered by the 1st of February, 1848; the Baggage Cars by the 1st of December, and the Mail Cars by the 15th of December next.

BENJ. H. LATROBE, Chief Eng.
& Gen. Sup't. Baltimore and Ohio Railroad.
243 Office No. 23 Hanover St., Baltimore,

TO LOCOMOTIVE ENGINE BUILDERS.—Proposals under seal will be received by the undersigned up to SATURDAY, the 6th of November, inclusive, for furnishing the Baltimore & Ohio Railroad Co. with 4 LOCOMOTIVE ENGINES, in conformity with the following specification.

1. The weight not to exceed 20 tons, of 2240 lbs., and to come as near to that limit as possible.
2. The weight to be uniformly distributed upon all the wheels, when the engine is drawing her heaviest load.
3. The number of wheels to be eight.
4. The diameter of the wheels to be 43 inches.
5. The four intermediate wheels to be without flanges.
6. The boiler to contain not less than 1000 square feet of fire surface, of which there shall be not less than one-fifteenth in the fire box.
7. The tubes of No. 11 flue iron, with not less than 1½ inch space between them in the tube sheets.
8. The fire box with the exception of the tube and crown sheets to be of 1 inch copper.
9. The tube sheets to be ½ inch thick.
10. The boiler to be of No. 3 iron, of the best quality.
11. The fire box to be not less than 24 inches deep below the cylindrical part of the boiler.
12. The steam to be taken to the cylinder from a separate dome on the fore part of the boiler.
13. The frame, including the pedestals, to be entirely of wrought iron, and the boiler to be connected therewith, so as to allow of contraction and expansion without strain on either.
14. The cylinders to be 29 inches stroke, and not less than 17 inches diameter.
15. The cut off to be effected by a double valve, worked by separate eccentrics.
16. The angle of the cylinder to be not greater than 13½ degrees with the horizontal line.
17. The frame and bearings to be inside the wheels and the direction from the cylinder direct with the back pair of intermediate wheels.
18. The centres of the extreme wheels to be not more than 11½ feet apart.
19. The wheels to be of cast iron with chilled tire.
20. The means to be provided of varying the power of the exhaust in the blast pipe.
21. The engine to be warranted to do full work with Cumberland or other bituminous coal, in a raw state, as the fuel—and the furnace to be provided with an upper and lower fire door with that view.
22. The smoke stack to be provided with a wire gauze covering.
23. Two safety valves to be placed upon the boiler, each containing not less than 5 square inches of surface and one to be out of the reach of the engineer.
24. The tender to be upon 8 wheels and constructed upon such plan as shall be furnished by the company, and to carry not less than 3 cords of wood or its equivalent in coal, and 1500 gallons of water.
25. The materials and workmanship to be of the best quality, and the engine to be subjected to a trial of 30 days steady work with freight upon the road, before acceptance by the company.

Payment to be made in cash on the acceptance of the engine. The four engines to be delivered at the company's Mount Clare depot, in Baltimore—the first on the 1st of February, 1848, and the three others on the 1st of March, April and May, ensuing.

The track is 4 feet 8½ inches gauge, and the shortest curve of the road is 400 feet radius.

The company to be secured against all patent claims.

Further information will be communicated upon application to the undersigned, at the company's office, No. 23 Hanover street, Baltimore, to which the proposals suitably endorsed will be addressed.

By order of the President and Directors,
BENJ. H. LATROBE,
Chief Engineer and General Superintendent,
Baltimore, Sept. 18th, 1847.

RAILROAD IRON.—THE NEW JERSEY IRON COMPANY, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to
FULTER & BROWN, Agents,
No. 139 Greenwich, corner of Cedar street,
June 1, 1847.

NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST. Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 16th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

2m32

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES.

From 4 inches to $\frac{1}{2}$ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit; fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS,
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

SPRING STEEL FOR LOCOMOTIVES,
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from $1\frac{1}{2}$ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works.

RAILROAD IRON.—400 TONS ENGLISH,
60 pounds per lineal yard, of best manufacture, and expected to arrive about 1st October by London packets. Apply to

DAVIS, BROOKS & CO.,
68 Broad Street, New York.

1m37
FOR SALE—300 TONS (10 MILES) FLAT
Bar Rail, in parcels or wholesale—section $\frac{1}{2}$ inches wide by $\frac{1}{4}$ thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

I. R. TRIMBLE,
Wilmington, Del.

DAY, CROSKY & ROSS,
COMMISSION MERCHANTS,
57 THREADNEEDLE STREET, LONDON,
13 ORCHARD PLACE, SOUTHAMPTON,
SHIPPING & COMMISSION AGENTS

FOR
PASSENGERS, SPECIE, GOODS, PARCELS, etc.
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

For Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m ROBERT GRACIE.

LOCOMOTIVE AND CAR AXLES. The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,
Willow Street Wharf,
Philadelphia, Pa.

2m

PATENT RAILROAD, SHIP AND BOAT SPIKES. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having counterank heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y. will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janvers, Baltimore; Degrand & Smith, Boston.

* Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

MANUFACTURE OF PATENT WIRE
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by

JOHN A. ROEBLING, Civil Engineer,
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

92v11

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wil N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Remmelen, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

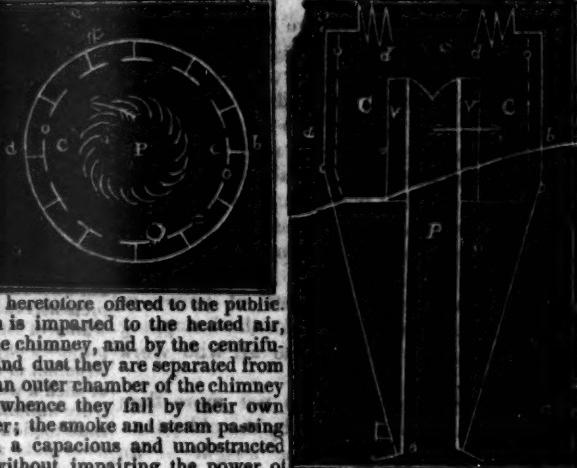
FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

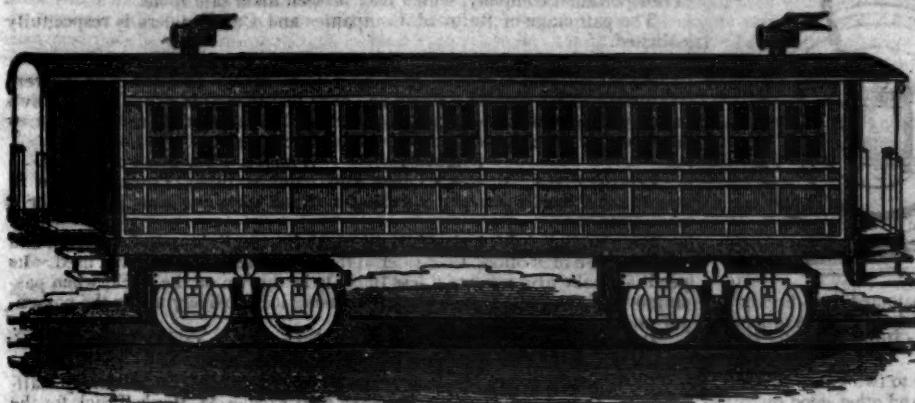
* The letters in the figures refer to the article given in the Journal of June, 1844.

Philadelphia, Pa., April 6, 1844.

ja45



DAVENPORT & BRIDGES CAR WORKS, CAMBRIDGEPORT, MASS.

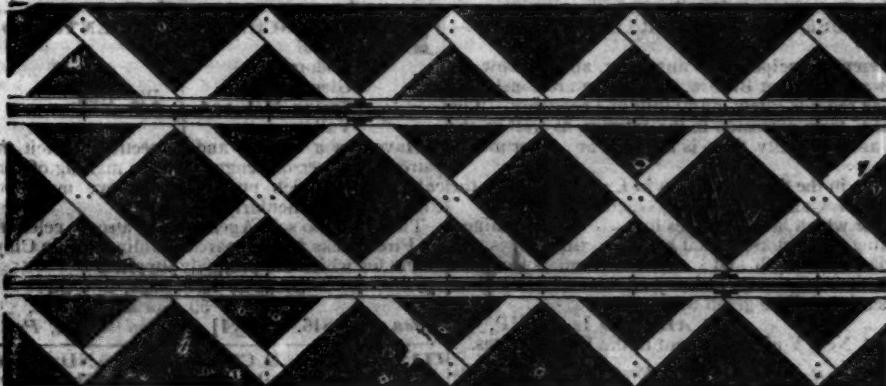


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track; or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only $\frac{3}{4}$ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroad roads, they can be readily replaced without any disturbance of the timbers less liable to wear:

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,924 Timbers, 11 ft. long, 3 x 6 inches =	
63,096 ft. b.m., at \$10 =	\$636 96
587 Oak joint blocks, 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 = 57 24	
13,000 Spikes = 2,250 lbs. at 44 cts 191 25	
Workmanship free of patent charge.....	600 00

Cost of one mile including the laying of the Rail..... \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON,
Civil Engineer and Patentee,
No. 277 South Tenth St., Philadelphia.

L.A.P.—WELDED WRUGHT IRON TUBES

FOR
TUBULAR BOILERS,
FROM 1 1-4 TO 6 INCHES DIAMETER,
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
Patentee.
1y25 28 Platt street, New York.

RAILROAD IRON. MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for Railroad Irons, of any pattern, and equal a point of quality to any other manufactured.

Address J. M. HOWE,
Pres't. Mt. Savage Iron Works,
Dec. 23, 1y*

Maryland.

ENGINEERS' AND SURVEYORS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street,
below Walnut,
Philadelphia.

THE SUBSCRIBER has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc. ANDREW MENEELY.
West Troy, May 12, 1847.

1y21

PIG AND BLOOM IRON.—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of iron is solicited by

A. WRIGHT & NEPHEW,
12af Vine St. Wharf, Philadelphia.

RAILROAD IRON.—THE "MONTOUR" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO.

Agents.

1y48 77 Pine St., New York.

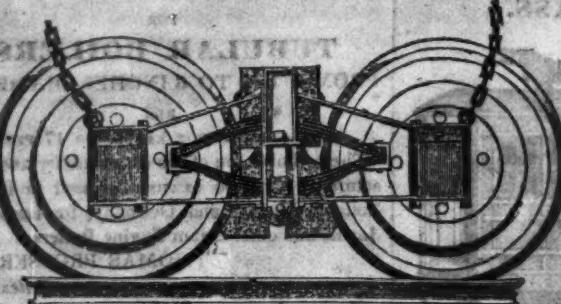
LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flocks and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases its solidity for years.

For sale in lots to suit purchasers, in tight paper, in barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

1y Orders for the above will be received and promptly attended to at this office.

2015

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly improved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads; a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy grates, standing rigging, window cords, lightning conductors, signal balyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.			STRENGTH	
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.		Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		INCH.	INCH.			
11	4 $\frac{1}{2}$	13 5	10	21 -		50	15-16		20	
13	3 $\frac{1}{2}$	9 3	8 $\frac{1}{2}$	16 -		27	11-16		13 $\frac{1}{2}$	
14	3 $\frac{1}{2}$	6 11	7 $\frac{1}{2}$	12 8		17	9-16		10 $\frac{1}{2}$	
15	2 $\frac{1}{2}$	5 9	6 $\frac{1}{2}$	9 4		13	1-2		7 $\frac{1}{2}$	
16	2 $\frac{1}{2}$	4 3	6	8 8		10	7-16		7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st., Office, No. 3 North 5th street, Philadelphia, Pa.

1y35

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

Ja46

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction, I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, [Signed.] JOHN LEACH,

Jamaica November 12, 1845. [y19] Sup't Motive Power

THE SUBSCRIBERS, AGENTS FOR

the sale of

Codorns,
Glendon,
Spring Mill and
Valley,

Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846. [y14] Philadelphia, Pa.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE, N. E. cor. 12th and Market sts., Philad., Pa.

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

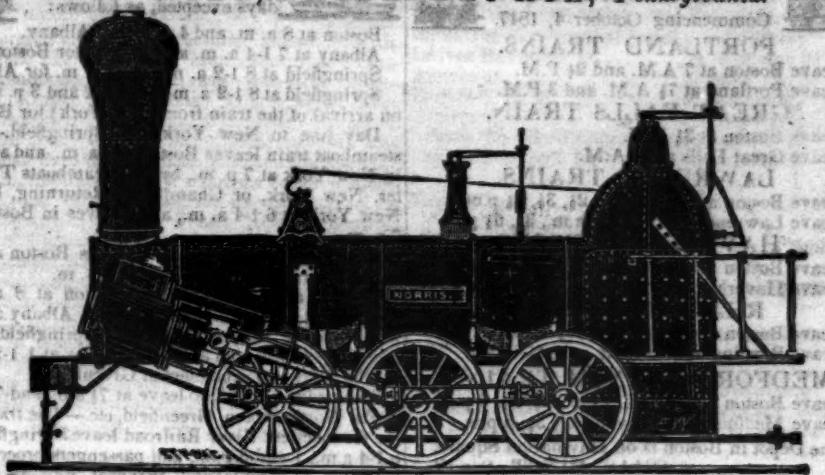
MORRIS TASKER & MORRIS, Wartouse S. E. corner 3d and Walnut Sts., Philadelphia.

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip, New York.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches Diameter of Cylinder,	\times 20 inches Stroke.
" 2,	14 "	" \times 24 "
" 3,	14½ "	" \times 20 "
" 4,	12½ "	" \times 20 "
" 5,	11½ "	" \times 20 "
" 6,	10½ "	" \times 18 "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order; and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N.J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire, Peter Cooper, New York.
Murdoch, Leavitt & Co., New York.
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.
J. Patton, Jr., Philadelphia, Pa.
Colwell & Co., Philadelphia, Pa.
J. M. L. & W. H. Scovill, Waterbury, Conn.
N. E. Screw Co., Providence, R. I.
Eagle Screw Co., Providence, R. I.
William Parker, Supt. Boston and Worcester, R. I.
New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co., Newark, N. J.
25,000 to 30,000 made weekly.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearings of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY, President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE TYRES imported to order and constantly on hand by A. & G. RALSTON
Mar. 20th, 1847. 4 South Front St., Philadelphia.

WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1½ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,
12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 4 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 4 " Flange Iron Rails. 75 " 1 x 4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

THE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO., Philadelphia.
ROBERT NICHOLS, Agent, No. 79 Water St., New York.

PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

26th J. BALL & CO.

CONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains between the two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m. on arrival of the morning trains from Great Falls. At about 11 3-4 a.m. on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland.

WALDO HIGGINSON, Agent.

PATERSON RAILROAD

Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at 8 o'clock a.m. and 9 1/2 o'clock a.m.

11 1/2 o'clock a.m. and 12 1/2 o'clock p.m. W

4 o'clock p.m. and 5 1/2 o'clock p.m.

On Sunday.

8 o'clock a.m. and 9 1/2 o'clock a.m. and

4 o'clock p.m. and 5 1/2 o'clock p.m.

Office 75 Courtland St.

CONCORD RAILROAD.—PASSENGER

Trains in connection with the Lowell & Nashua Railroads, run daily between

Concord and Boston, Sundays excepted, as follows:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.

Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than \$50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

N. G. UPHAM, Supt.

NORWICH AND WORCESTER RAIL-

Road. Summer Arrangement. Change of Hours. Commencing on

Wednesday, April 31, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a.m., and 4 p.m. Leave Worcester, at 8 a.m., and 4 p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2 p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6 p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday. Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are less when paid for Tickets than when paid in the Cars.

J. W. STOWELL, Supt.

LONG ISLAND RAILROAD COMPANY.

Summer Arrangement. On and after Monday

May 1st, trains will run as

follows, except Sundays—

Leave—Brooklyn at 9 1/2 a.m. for Farmingdale, 1 1/2 p.m. for Greenport, at 4 p.m. for Farmingdale.

Leave Farmingdale at 7 a.m. for Brooklyn, 12 m. do., at 3 1/4 do. do. do. do. do. do. do. do. do.

Leave Greenport at 8 1/2 a.m. for Brooklyn.

Leave Jamaica at 8 a.m. for Brooklyn, at 1 p.m. do. at 4 p.m. do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p.m. Leave Yaphank, on Mondays for Brooklyn at 5 1/2 a.m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a.m. for Brooklyn—leave Brooklyn at 6 p.m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1/2 a.m. for Farmingdale; leave Farmingdale at 4 p.m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a.m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

DAVID S. IVES, Supt.

BOSTON AND MAINE RAILROAD

Upper Route, to Portland and the East.

WINTER ARRANGEMENT.

Commencing October 4, 1847.

PORTLAND TRAINS.

Leave Boston at 7 A.M. and 2 1/2 P.M.

Leave Portland at 7 1/2 A.M. and 3 P.M.

GREAT FALLS TRAIN.

Leave Boston at 3 1/2 P.M.

Leave Great Falls at 6 1/2 A.M.

LAWRENCE TRAINS.

Leave Boston at 7, 11 1/2 a.m., 2 1/2, 3 1/2, 5 1/2 p.m.

Leave Lawrence at 7, 8 1/2, 11 a.m., 3 1/2, 6 1/2 p.m.

HAVERHILL TRAINS.

Leave Boston at 11 1/2 A.M. and 5 1/2 P.M.

Leave Haverhill at 7 A.M. and 3 1/2 P.M.

READING TRAINS.

Leave Boston at 8 1/2 A.M. and 6 1/2 P.M.

Leave Reading at 6 50 A.M. and 1 1/2 P.M.

MEDFORD BRANCH TRAINS.

Leave Boston at 7 1/2, 12 m., 2 1/2, 4 1/2, 6 p.m.

Leave Medford at 7, 8 1/2, a.m., 1 1/2, 3 1/2, 5 p.m.

The Depot in Boston is on Haymarket Square.

1/31 CHAS. MINOT, Super't.

BOSTON AND PROVIDENCE RAIL-

road. Passenger Notice. Summer Arrange-

ment. On and after Mon-

day, April 5, 1847, the Pas-

enger Trains will run as follows:

Steamboat train via Stonington—Leaves Boston

every day, except Sunday, at 5 o'clock p.m.

Accommodation Trains—leave Boston at 7 and

10 1/2 a.m. and 4 p.m., and Providence at 7 1/2 and 10 1/2 a.m. and 4 1/2 p.m.

Dedham trains, leave Boston at 8 a.m., 12 1/2, 3 1/2, 6 1/2 and 9 p.m., Leave Dedham at 7 and 9 1/2 a.m. and 2 1/2, 5 1/2 and 8 p.m.

Stoughton trains, leave Boston at 11 1/2 a.m. and

5 1/2 p.m. Leave Stoughton at 7 10 a.m. and 3 1/2 p.m.

All baggage at the risk of the owners thereof.

25t W. RAYMOND LEE, Supt.

NEW YORK & HARLEM RAILROAD

CO.—Summer Arrangement.—On and after

Tuesday, June 1st, 1847, the cars

will run as follows, until further

notice. Up trains will leave the City Hall for—

Yorkville, Harlem and Morrisania at 6, 8 and 11

a.m., 2, 3 30, 5 and 7 p.m.

For Morrisania, Fordham, Williams' Bridge,

Tuckahoe, Hart's Corner and White Plains, 7 and

10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Me-

chaniesville and Croton Falls, 7 a.m. and 4 p.m.—

Freight train at 1 p.m.

Returning to New York, will leave—

Morrisania and Harlem, 7, 8 20 and 9 a.m., 1, 3,

4, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m.

Williamsbridge, 8 and 9 08 a.m., 4 10, 6 08 p.m.

Tuckahoe, 7 38 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 18 a.m. and 4 48 p.m.

Croton Falls, 7 30 a.m. and 4 30 p.m. Freight

train at 10 a.m.

Freight train will leave 32d street for Croton Falls

and intermediate places, 4 a.m. and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9 1/2 p.m.

ON SUNDAYS, the trains will run as follows:

Leave City Hall for Croton Falls, 7 a.m., 4 p.m.

Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and interme-

diate places, 7 and 10 a.m. 4 and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m.

12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and

Williamsbridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop

on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers

\$1, to Mechanicville 37c, to Newcastle 75c, to

Pleasantville 62c, to White Plains 50c.

ESTERN RAILROAD.—ON AND AF-

ter Monday, April 5, 1847, the passenger

trains will leave daily, Sun-

days excepted, as follows:

Boston at 8 a.m. and 4 p.m. for Albany.

Albany at 7 1/4 a.m. and 5 p.m. for Boston.

Springfield at 8 1/2 a.m. and 1 p.m. for Albany.

Springfield at 8 1/2 a.m. and 1 1/2 and 3 p.m. (or

on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The

steamboat train leaves Boston at 6 a.m., and arrives

in New York at 7 p.m., by the steamboats Traveler,

New York, or Champion. Returning, leaves New York at 6 1/4 a.m., and arrives in Boston at

7 p.m.

Night line to New York.—Leaves Boston at 4 p.

m., and arrives in New York at 5 a.m.

Albany and Troy.—Leave Boston at 8 a.m.,

Springfield at 1 p.m., and arrive in Albany at 6 p.

m.; or, leave Boston at 4 p.m., Springfield next

morning at 8 1/2, and arrive in Albany at 1 1/2 p.m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7 a.m. and 7 p.m.

For Northampton, Greenfield, etc.—The trains of

the Connecticut River Railroad leave Springfield at

8 1/4 a.m., 1 and 3 p.m., and passengers proceed di-

rectly on to Brattleboro, Windsor, Bellows Falls,

Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on

the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Rail-

road leave Pittsfield on the arrival of the trains from

Boston.

N. B.—No responsibility assumed for any bag-

gage by the passenger trains, except for wearing

apparel not exceeding the value of fifty dollars, un-

less by special agreement.

JAMES BARNES, Supt' and Eng'r.

C. A. SEAD, Agent, 27 State street, Boston.

NEW YORK AND ERIE RAILROAD LINE

SUMMER ARRANGEMENT. For pas-

sengers, twice each way daily,

(except Sunday,) leave New

York from the foot of Duane St. at 7 o'clock, A. M.

and at 4 o'clock, P. M. by steamboat, for Piermont,

thence by cars to Ramapo, Monroe, Chester, Go-

shen, Middletown, Otisville, and the intermediate

stations.

The return trains for New York will leave Otis-

ville at 6 30, A. M. and 4 15, P. M.; Middletown at

7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and

5 30, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, \$1 50;

way-fare in proportion.

For MILK—Leave Otisville at 5 1/2 o'clock, morn-

ing and evening.

For FREIGHT—The barges "Samuel Marsh and

"Henry Saydam, Jr." will leave New York (from

the foot of Duane St.) at 5 o'clock, P. M. daily (ex-

cept Sundays.)

No freight will be received in New York after 5

o'clock, P. M.

Freight for New York will be taken by the trains

leaving Otisville at 10 1/2 o'clock, A. M.; Middletown

at 11, A. M.; Goshen at 12 1/2, P. M.; Chester at 1

o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARK-

SON, Agent, corner of Duane and West Sts., New

York; or to S. S. POST, Superintendent Transportation,

Piermont.

H. C. SEYMORE, Supt.

GREAT SOUTHERN MAIL LINE! VIA

Washington city, Richmond, Petersburg, Wel-

don and Charleston, S. C., direct to New Orleans.

The only Line which carries the Great Southern

Mail, and Twenty-four Hours in advance of Bay

Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Phila-

delphia at 10 P.M., and Baltimore at 6 1/2 A.M., pro-

ceed without delay at any point, by this line, reaching

Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from

Baltimore.

Fare from Baltimore to Charleston.....\$31 00

" " " " " Richmond.....6 60

For Tickets, or further information, apply at the

Southern Ticket Office, adjoining the Washington

Railroad Office, Pratt street, Baltimore, to

STOUTON & FALLS, Agents.

BALTIMORE AND OHIO RAILROAD, MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7; and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore $\frac{1}{2}$ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 26 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 13 at night from Baltimore and at 6 A. M. and $\frac{1}{2}$ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13 $\frac{1}{2}$

LITTLE MIAMI RAILROAD COMPANY. Fall and Winter Arrangement, 1847. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4 $\frac{1}{2}$ a.m. Upward train arrives at Cincinnati at 10 $\frac{1}{2}$ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad 84 miles. From Springfield to Bellefontaine by stage, over a good Summer road 32 " From Bellefontaine to Sandusky city by railroad 102 "

FARE—From Cincinnati to Lebanon \$1 00
" " " Xenia 1 50
" " " Springfield 2 00
" " " Columbus 4 00
" " " Sandusky city 7 00

The Passenger train runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

W. H. CLEMENT, Sup't.

BALTIMORE AND SUSQUEHANNA RAILROAD. Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at 9 a.m. and 3 p.m.

Arrives at 9 a.m. and 6 $\frac{1}{2}$ p.m.

Leaves York at 5 a.m. and 3 p.m.

Arrives at 12 $\frac{1}{2}$ p.m. and 8 p.m.

Leaves York for Columbia at 14 p.m. and 8 a.m.

Leaves Columbia for York at 8 a.m. and 2 p.m.

FARE.

Fare to York \$1 50

" Wrightsville 2 00

" Columbia 2 12 $\frac{1}{2}$

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg \$9

Or via Lancaster by railroad 10

Through tickets to Harrisburg or Gettysburg 3

In connection with the afternoon train at 3 $\frac{1}{2}$ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at 5 p.m.

Returning, leaves Owing's Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.

Ticket Office, 63 North St.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m. and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 35 $\frac{1}{2}$

CENTRAL AND MACON AND WESTERN RAILROADS.

These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad Miles.

Macon to Atlanta—Macon and Western 101

Atlanta to Oothcaloga—Western and Atlantic 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings 40 50

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones 0 50

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot 0 20

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot 0 20 pr. 100 lbs. 35

Crockery, per cubic foot 0 15 "

Molasses and Oil, per hhd. (smaller cask in proportion) 9 00

Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each 1 25

Ploughs, (small,) and Wheel-barrow 0 80

Salt, per Liverpool Sack 0 70

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price,

Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846.

CENTRAL RAILROAD FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$3 00. Freight—

On weight goods generally 50 cts. per hundred.

On measurement goods 18 cts. per cubic ft.

On brls. wet (except molasses and oil) \$1 50 per barrel.

On brls. dry (except lime) 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery 40 cts. per hundred.

On hds. and pipes of liquor, not over 120 gallons 25 00 per hhd.

On molasses and oil 36 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE, yd. Gen'l. Supt. Transportation.

SOUTH CAROLINA RAILROAD.

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscarawas Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily \$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscarawas 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road, and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

THE WESTERN AND ATLANTIC RAILROAD.

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warren, Huntsville, Decatur and Tuscarawas, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846.

NEW YORK AND PHILADELPHIA RAILROAD.

road line—direct. Via Newark, New Brunswick, Princeton, Trenton,

and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line 9 o'clock a.m.

Mail pilot line 4 p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

FARE BETWEEN NEW YORK & PHILA.

First class cars 34 00

Second class cars 3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m., and 4 1/2 p.m.

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3 $\frac{1}{2}$ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York.

PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 45 A. M.

Fares. Miles. No. 1. No. 2.
Between Phila. and Pottsville, 92 \$3 50 and \$3 00
" " Reading, 58 2 25 and 1 90
" " Pottsville 34 1 40 and 1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore, 8 a.m. and 10 p.m.
Baltimore for Philadelphia, 9 a.m. and 8 p.m.
Connecting with Mail Lines North, South & West.

On Sunday, only the 10 P. M. Lines run.

The Boat Lines via Newcastle & Frenchtown R.R.

Leave Philadelphia at 3 p.m. No line on Sun.

Leave Baltimore at 3 p.m. 1 day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 1/2 p.m., 4 p.m., 7 p.m.; 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 p.m., 7 p.m., 12 1/2 a.m., night mail.

R. TRIMBLE, Esq.,

Engineer and General Superintendent.

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON—100 MILES.

This Road in connection with

the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga., 50 miles from Chattanooga, Tenn.

RATES OF FREIGHT.

	Between Augusta and Dalton	Between Charleston and Dalton
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.	10 18 10 98
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00 1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60 0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40 0 65
Cotton, per 100 lbs.	0 45 0 75	
Molasses, per hogshead,	8 50 13 50	
" barrel.	2 50 4 25	
Salt per bushel.	0 18	
Salt per Liverpool sack.	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.	0 75 1 50	
German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.		
Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Atlanta.		
F. C. ARMS, Sept. of Transportation.		
Augusta, Ga., July 15, 1847.		44 1/2

RATES OF FREIGHT.

IN CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between New Orleans and Decatur and immediate points.	0 22	0 22
and Knoxville & intermediate points	0 22	1 54
and Chattanooga	1 54	1 10
and Decatur and intermediate points.	0 24	1 70
and Knoxville & intermediate points	0 24	1 20
and Chattanooga	1 70	1 15
and Decatur and intermediate points.	0 24	1 35
and Knoxville & intermediate points	0 24	1 05
and Chattanooga	1 35	1 10
Between Chattanooga and Decatur and intermediate points.	2 20	2 90
and Knoxville & intermediate points	2 20	3 90
and Chattanooga	3 90	3 60
Between Chattanooga and Chattanooga	3 60	3 60

FRANKLIN HOUSE.

No. 105 Chestnut Street, Philadelphia. The under-signed takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean bells—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor.

D. K. MINOR.

BOUNDED VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

Or, One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

ENGINEERS AND MACHINEISTS.

THOMAS PHOSSEY, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & CO., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & CO., N. Y.

JAS. P. ALLIARD, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa. (See Adv.)

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL.

OFFICES AT THE FRANKLIN HOUSE,

105 Chestnut Street, Philadelphia.

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

RATES OF ADVERTISING.

One page per annum. \$125 00

One column " " " 50 00

One square " " " 15 00

One page per month. 20 00

One column " " " 8 00

One square " " " 2 50

One page, single insertion. 8 00

One column " " " 3 00

One square " " " 1 00

Professional notices per annum. 5 00

REGULAR RATES BETWEEN ATLANTA AND CHARLESTON

OR, SAVANNAH.

First class, per foot. \$0 20

Second class, per 100 lbs. 1 20

Cotton, per 100 lbs. 0 55

Third class, per 100 lbs. 0 60

Fourth class, per 100 lbs. 0 50